

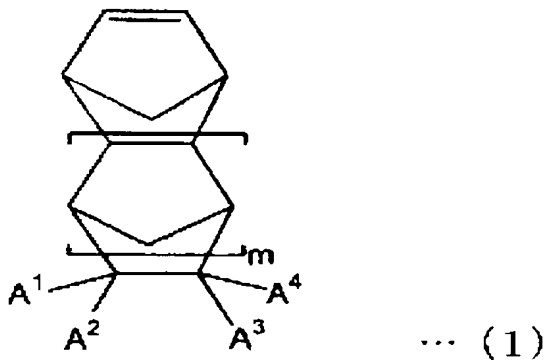
SUPPORT FOR THE AMENDMENTS

The amendment to Claim 1 is supported by Claim 5, now canceled. Newly-added Claims 7-15 are supported by the specification. Accordingly, no new matter is believed to have been added to the present application by the amendments submitted above.

REMARKS

Claims 1-4 and 6-15 are pending. Favorable reconsideration is respectfully requested.

The present invention relates to a process for preparing a cycloolefin addition polymer, comprising addition-polymerizing monomers containing a cycloolefin compound represented by the following formula (1):



in the presence of:

a multicomponent catalyst comprising:

(a) a palladium compound,

(b) a compound selected from an ionic boron compound, an ionic aluminum compound, a Lewis acidic aluminum compound and a Lewis acidic boron compound, and

(c) a phosphine compound having a substituent selected from an alkyl group, a cycloalkyl group, and an aryl group of 3 to 15 carbon atoms, and having a cone angle (θ deg) of 170 to 200, or its phosphonium salt, and

ethylene,

where the amount of ethylene used in the addition polymerization is in the range of 0.1 to 5.0% by mol based on all the monomers.

See Claim 1.

The rejection of the claims under 35 U.S.C. §103(a) over U.S. '961 in view of Rhodes is respectfully traversed. The cited references fail to suggest the claimed process.

There are, *inter alia*, two important features of the claimed method.

- (1) The phosphine compound (or phosphonium salt) having a cone angle (θ deg) of 170 to 200 as part of the multicomponent catalyst and
- (2) Ethylene as a molecular weight modifier, where the amount of ethylene used in the addition polymerization is in the range of 0.1 to 5.0% by mol based on monomers.

The use of the specific phosphine compound or phosphonium salt is important, because if another phosphine compound or phosphonium salt is used, the resulting cycloolefin addition polymer becomes extremely high in terms of molecular weight. In this situation, the polymer solution sometimes becomes in a swollen solid state or the polymer is sometimes precipitated, resulting in that molding into film, a sheet or a thin film by casting is difficult. See page 20, paragraph [0031] of the specification.

The use of ethylene in a specific amount specifically exerts the molecular weight control effect, and in case of other α -olefins or hydrogen, the effect is low or almost nil. See page 26, paragraph [0041] of the specification.

Accordingly, features (1) and (2) provide higher polymerization activity with small amounts of a catalyst and a molecular weight modifier of ethylene.

The unexpected results obtained with the process of Claim 1 are demonstrated in the executed Rule 132 Declaration of Mr. Maruyama, submitted herewith.

In Comparative Experiment Example 1 of the Declaration, polymerization was carried out in the same manner as in Example 5 of the present application, except that the molecular weight modifier was changed from ethylene to styrene in 0.083 g (0.8 mmol, which

corresponded to 1.0 mol% relative to all the monomers) and as a result, the conversion of monomers into polymer was drastically reduced to 75%.

In Comparative Experiment Example 2 of the Declaration, the polymerization was carried out in the same manner as in Comparative Experiment Example 1, except that the phosphine compound was changed from tricyclohexylphosphine to tri-o-tolylphosphine. In this experiment, the conversion of monomers into polymer was drastically reduced to 62%.

	Molecular weight modifier		Conversion into polymer (%)	Content of structural unit derived from monomer a (mol%)	Molecular weight of polymer ($\times 10^4$)	
	Type	Amount added (mol%)			Mn	Mw
Ex. 5 (Invention)	Ethylene	1.0	97	9.2	3.6	15.1
Comp. Exp. Ex. 1	Styrene	1.0	75	9.0	3.8	17.0
Comp. Exp. Ex. 2	Styrene	1.0	62	9.3	5.8	24.6

As recognized by the Examiner, U.S. '961 fails to describe features (1) and (2) discussed above. See paragraph (10) of the Office Action. While Rhodes may describe these features, one with the cited references in hand would not have predicted the striking experimental results presented in the Declaration.

In view of the foregoing, the combination of U.S. '961 and Rhodes fails to suggest the claimed process. Accordingly, the subject matter of Claims 1-4 and 6-15 is not obvious over those references. Withdrawal of this ground of rejection is respectfully requested.

The improper multiple claim dependencies are believed to be corrected by the amendments submitted above.

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Reply to Office Action of October 22, 2008

Applicants submit that the present application is in condition for allowance. Early notice to this effect is earnestly solicited.

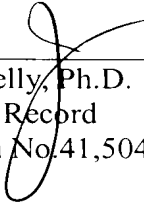
Respectfully submitted,

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